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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/527,141	03/09/2005	Thomas P. Bowman	97347.00030	9491
21832	7590	12/31/2007	EXAMINER	
MCCARTER & ENGLISH LLP CITYPLACE I 185 ASYLUM STREET HARTFORD, CT 06103			GANAY, STEVEN J	
ART UNIT		PAPER NUMBER		
3752				
MAIL DATE		DELIVERY MODE		
12/31/2007		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/527,141	BOWMAN ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Steven J. Ganey	3752	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### **Status**

1) Responsive to communication(s) filed on 09 March 2005.

2a) This action is FINAL.                            2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### **Disposition of Claims**

4) Claim(s) 26-43,46,53 and 54 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 26-43,46,53 and 54 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### **Application Papers**

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### **Priority under 35 U.S.C. § 119**

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### **Attachment(s)**

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO/SB/08)  
 Paper No(s)/Mail Date 7/11/05.

4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_

5) Notice of Informal Patent Application

6) Other: B1B Data Sheet

## **DETAILED ACTION**

### ***Priority***

1. If applicant desires to claim the benefit of a prior-filed application under 35 U.S.C. 119(e) or 120, a specific reference to the prior-filed application in compliance with 37 CFR 1.78(a) must be included in the first sentence(s) of the specification following the title or in an application data sheet. For benefit claims under 35 U.S.C. 120, 121 or 365(c), the reference must include the relationship (i.e., continuation, divisional, or continuation-in-part) of the applications.

If the instant application is a utility or plant application filed under 35 U.S.C. 111(a) on or after November 29, 2000, the specific reference must be submitted during the pendency of the application and within the later of four months from the actual filing date of the application or sixteen months from the filing date of the prior application. If the application is a utility or plant application which entered the national stage from an international application filed on or after November 29, 2000, after compliance with 35 U.S.C. 371, the specific reference must be submitted during the pendency of the application and within the later of four months from the date on which the national stage commenced under 35 U.S.C. 371(b) or (f) or sixteen months from the filing date of the prior application. See 37 CFR 1.78(a)(2)(ii) and (a)(5)(ii). This time period is not extendable and a failure to submit the reference required by 35 U.S.C. 119(e) and/or 120, where applicable, within this time period is considered a waiver of any benefit of such prior application(s) under 35 U.S.C. 119(e), 120, 121 and 365(c). A benefit claim filed after the required time period may be accepted if it is accompanied by a grantable petition to accept an unintentionally delayed benefit claim under 35 U.S.C. 119(e), 120, 121 and 365(c). The petition

must be accompanied by (1) the reference required by 35 U.S.C. 120 or 119(e) and 37 CFR 1.78(a)(2) or (a)(5) to the prior application (unless previously submitted), (2) a surcharge under 37 CFR 1.17(t), and (3) a statement that the entire delay between the date the claim was due under 37 CFR 1.78(a)(2) or (a)(5) and the date the claim was filed was unintentional. The Director may require additional information where there is a question whether the delay was unintentional. The petition should be addressed to: Mail Stop Petition, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

If the reference to the prior application was previously submitted within the time period set forth in 37 CFR 1.78(a), but not in the first sentence(s) of the specification or an application data sheet (ADS) as required by 37 CFR 1.78(a) (e.g., if the reference was submitted in an oath or declaration or the application transmittal letter), and the information concerning the benefit claim was recognized by the Office as shown by its inclusion on the first filing receipt, the petition under 37 CFR 1.78(a) and the surcharge under 37 CFR 1.17(t) are not required. Applicant is still required to submit the reference in compliance with 37 CFR 1.78(a) by filing an amendment to the first sentence(s) of the specification or an ADS. See MPEP § 201.11.

Note the continuing date information in the Bib Data Sheet.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 32, 42, 43, 53 and 54 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 32 and 53, the preambles of the claims are inconsistent with the body of the claims. In claim 32 a swirl disk (subcombination) is recited in the preamble, however, recitation of "in combination with an orifice disk" is indefinite since the combination of these two subcombinations elements, the swirl disk and orifice disk are defining the spray nozzle, not just the swirl disk as recited in original claim 26 and claim 32.

In claim 53, the recitation in the preamble is inconsistent with the body of the claim, since the body of the claim is further defining the spray nozzle, not the swirl disk and orifice disk.

In claim 54, the preamble lack antecedent basis, "A spray nozzle as defined in claim 53", since a spray nozzle has not been recited in the preambles of claims 32 and 53.

It is recommended that claim 32 be written in independent form as --A spray nozzle comprising-- and limitations to the swirl disk and orifice disk added thereafter.

### ***Double Patenting***

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225

USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claim 46 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 22 of U.S. Patent No. 7,198,201. Although the conflicting claims are not identical, they are not patentably distinct from each other because they both claim a swirl disk for a nozzle formed in accordance with the method of forming the swirl disk from a sheet material by removing/etching material from a peripheral portion, removing/etching material from the first region of the swirl disk and removing/etching material from a second region of the swirl disk. Claim 46 of the instant invention is broader in scope than claim 22 of U.S. Patent No. 7,198,201 and is therefore encompassed in the claim 22 of U.S. Patent No. 7,198,201.

#### ***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claim 26-29, 31-35, 46 and 53 are rejected under 35 U.S.C. 102(b) as being anticipated by Schulz.

Schulz shows a swirl unit comprising a swirl disk 3 with a first aperture forming a swirl chamber 32, see Figures 1 and 5 and second aperture 1 defining a flow inlet; an orifice disk 4 having a first aperture 5; and a retaining body 7 with an inlet and outlet aperture 38, see Figure 1.

Claim 46 is considered product-by-process claim, therefore, the method of making the swirl disk is not given any patentable weight.

8. Claims 26-29, 32-35, 46, 53 and 54 are rejected under 35 U.S.C. 102(b) as being anticipated by Tate et al '263.

Tate et al '263 shows a swirl unit comprising a swirl disk 26 with a first aperture forming a swirl chamber 25 and second aperture 27 defining a flow inlet, see Figure 2; a filter, see col. 3, line 75 through col. 4, line 2; an orifice disk 16 having a first aperture 20; a retaining body 10 with an inlet and outlet aperture 13, see Figure 1; a plug 30 with at least one fluid conduit 36 and at least one exit aperture 39 and an annulus 35.

Claim 46 is considered a product-by-process claim, therefore, the method of making the swirl disk is not given any patentable weight.

9. Claims 26-29, 32-35, 46 and 53 are rejected under 35 U.S.C. 102(b) as being anticipated by Tate et al '793.

Tate et al '793 shows a swirl unit comprising a swirl disk 14 with a first aperture forming a swirl chamber 16 and second aperture 17 defining a flow inlet, see Figure 2; an orifice disk 12 having a first aperture 13; a retaining body 10 with an inlet and outlet aperture 20, see Figure 1; a plug 18 with at least one fluid conduit formed by at least one flat, see col. 3, lines 17-24(I.e. cruciform) and an annulus see Figure 1.

Claim 46 is considered a product-by-process claim, therefore, the method of making the swirl disk is not given any patentable weight.

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 30, 39-43 and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schulz.

Schulz discloses all the feature elements of the instant invention except for the specific swirl chamber throat ratio ranges, swirl disk thickness ranges, ratio ranges of the swirl disk throat to the start radius of the swirl chamber, the orifice disk thickness ranges, the claimed range of the ratio of the axial depth of the spray orifice to a diameter of the spray orifice and a filter in the body.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the claimed ranges of the swirl chamber throat ratios depending on the amount of flow desired through the swirl chamber.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the claimed ranges of the swirl disk and orifice disk depending on the size of the nozzle.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the claimed ratio ranges of the swirl disk throat to the start radius of the swirl chamber depending on the amount of flow desired through the swirl chamber.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the claimed ratio ranges of the axial depth of the spray orifice to a diameter of the spray orifice depending on the type of spray desired from the nozzle.

As to the filter, it would be within the skill of one in the art to provide a filter in the apparatus of Schulz since it is well known to provide such filters in spray nozzles in order to filter any impurities of the liquid being sprayed such that the nozzle does not become clogged.

### ***Conclusion***

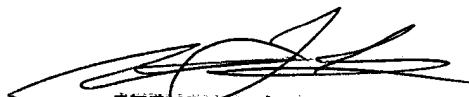
12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Soule et al, Pace et al and Ren et al show various types of spray nozzles with swirl disks.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven J. Ganey whose telephone number is 571-272-4899. The examiner can normally be reached on 9:00-5:00; Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin Shaver can be reached on 571-272-4720. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

12/26/07



STEVEN J. GANEY  
PRIMARY EXAMINER



12/26/07